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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/985,780	11/06/2001	Akira Yamamoto	122.1474	4517

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EXAMINER

TRAN, HENRY N

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/985,780

Applicant(s)

YAMAMOTO ET AL.

Examiner

HENRY N. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Application has been examined. The original claims 1-24 are pending. The examination results are as following.

Information Disclosure Statement

1. The examiner has considered the references listed in the information disclosure statement (IDS) filed 11/6/01 (Paper No. 2) (see the attached form PTO-1449).

Drawings

2. Figures 4A, 4B, 6A, and 6B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (as admitted by the applicants in the specification: page 12, lines 9 and 16). See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 9 and 21 recites the limitations "front frame" and "rear frame" in lines 10-11, and 10-13 of claims 9 and 21, respectively. There are insufficient antecedent basis for these limitations in the claim.

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For the purpose of this Office action, said above claimed limitations are changes to:

"front subframe" and "rear subframe". Applicants are required to review the disclosure and the claims for appropriate corrections in response to this Office action.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 5, 6, 10-14, 17, 18, and 22-24 rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka (U.S. Patent 6,552,701).

7. Regarding claims 1, 2, 13 and 14, Tanaka teaches a method and an apparatus for displaying gradation by a sub-field technique, in which a frame (or a field) is composed n sub-fields, each subfield has an address period (a scan period) and a light period (a sustaining discharge period), and the gradation scale is represented by combining the brightnesses of the lights emitted during the light periods of the subfields which have the data to be displayed; see figure 1, col. 1, lines 47 to 65; a two-divided sub-filed groups arrangement, wherein the subfields SF1 and SF2 of brightnesses $B=64$ and $B=32$ are arranged at the interval of about half the length of said frame, about $(1/2 \pm 1/14)$ frame; and the subfields SF3 and SF4 of brightnesses $B=16$ and $B=8$ are arranged at the interval of about half the length of said frame, and at the

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positioned almost at the midpoint between said two most brightness weighted subfields SF1 and SF2; see figure 5, col. 4, line 14 to col. 5, line 14. Claims 1, 2, 13 and 14 are therefore rejected.

8. Regarding claims 5, 6, 17, and 18, Tanaka also teaches that the brightness of each subfield is determined by the number of lit pulses (sustaining discharge pulses) in said sustaining discharge period, see col. 1, lines 50-64, and when the total number of lit pulses in a frame is varied in accordance with the gradation scale, the original clock frequency (e.g. the vertical synchronization signal, a system clock), which generates an execute signal in said light period, is varied ("output various timing signal"), see col. 6, lines 47-60. Claims 5, 6, 17 and 18 are dependent upon claims 1 and 13, and are rejected on the same reasons set forth in claims 1 and 13, and by the reasons noted above.

9. Regarding to claims 9-12 and 21-24, which comprises the claimed limitations of claims 5-6 and 17-18, and further characterize: a front subframe, a rear subframe, the interval between the start timing of the front subframe and the rear subframe is fixed; the plural of arrangement orders of said plural subfields in said frame are memorized for displaying; and the most brightness-weighted subfield, B=64, belongs to said front subframe, and the second most brightness-weighted subfield, B=32 belongs to the rear subframe, see figure 3. Tanaka further teaches said claimed limitation: the plural subfields of that field are arranged in a plurality of arrangements orders, each arrangement order comprising two divided subfield groups, wherein the one group is read on the claimed "front subframe", and the other group is read on the claimed "rear subframe", and the interval ("Margin") between the start timing of the front subframe and the rear subframe is fixed, see the "Margin" periods in figures 3-6 and 9-12. Claims 9-12 and

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21-24, are rejected based on the same reasons set forth in claims 5-6, or 17-18, and by the reasons noted above.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 4, 7-8, 15, 16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (U.S. Patent 6,552,701) in view of Fujisaki et al (U.S. Patent 5,973,655, hereinafter referred to as "Fujisaki").

Tanaka teaches generally all that includes: the total length of the plural subfields is shorter than that of the frame; a rest period occurs in said frame (the "Margin" period is read a on reset period, or a rest period) as discussed above. However, Tanaka does not teach that the rest period is divided into plural rest periods and the divided rest periods are arranged between the different subfields. Fujisaki discloses a method and an apparatus for driving a PDP; wherein one frame is divided into a plural subfields, and each of subfield comprises a rest period 61 (a reset period), see figures 11-12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the rest period, which is old and well known in the art, as disclosed by Fujisaki in the Tanaka device for producing the claimed invention because it would erase the wall charges residue between the X-sustaining electrodes and Y- scanning

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electrodes so that the display is able of providing high quality images with better brightness.

Claims 3, 4, 7-8, 15, 16, and 19-20 are therefore rejected by the reasons discussed above.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are:

- Hirakawa et al (U.S. Patent 6,097,358) teach an AC-driven PDP using field and subfield driving techniques with the reset period in subfield;
- Tanaka et al (U.S. Patent 6,052,112) disclose a gradation display system; wherein field, subfields, and half subfields are utilized in different arrangement orders for reducing disturbances; and
- Doherty et al (U.S. Patent 5,969,710) teach bit-splitting techniques for PWM display system.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY N. TRAN whose telephone number is (703) 308-8410. The examiner can normally be reached on Mon - Fri from 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD A. HJERPE, can be reached at (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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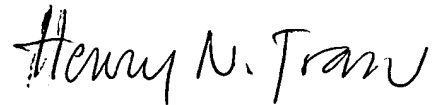
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office Whose telephone
number is (703) 306-0377.



HENRY N. TRAN
Examiner
Art Unit 2674

hnt
August 27, 2003